Check the Bair Hugger therapy website to ensure you have the most recent version of this document. www.bairhugger.com reorder #201020A

BAIR HUGGER* SERVICE MANUAL

Model 500/OR Warming Unit

Warning: Electrical Shock Hazard. There are electrically live parts within the warming unit when it is connected to a power source, even when the switches are in the *OFF* or *STANDBY* position.

Please forward to Biomedical Engineering Department

Arizant Healthcare
bright ideas that work

CE 0470

Worldwide Technical Service and Order Placement

United States, Worldwide

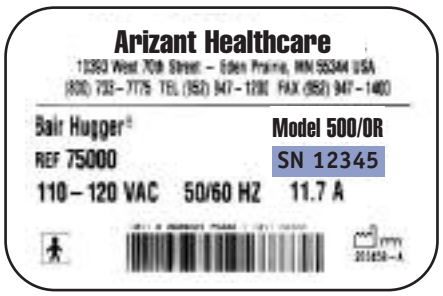
Technical Service	TEL:	1-952-947-1200
		1-800-733-7775
Order Placement	TEL:	1-952-947-1200
		1-800-733-7775
	FAX:	1-952-947-1400

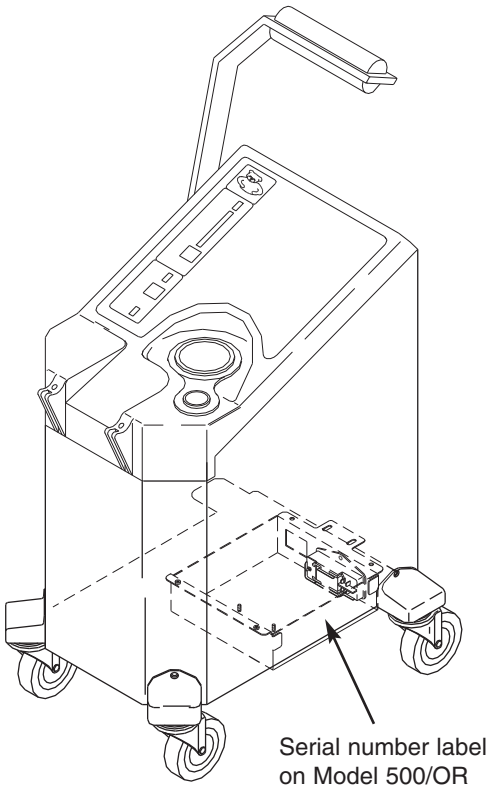
In-Warranty Repair and Exchange

Replacement parts to correct a problem are delivered at no charge. To return a device to Arizant Healthcare Inc. for service, first obtain a Return Authorization (RA) number from a technical service representative. Please use this number on all correspondence when returning a device for service. A shipping carton will be delivered to you at no charge, if needed. We will service and ship your device within five (5) working days of our receipt. Call your local supplier or sales representative to inquire about loaner devices while your device is being serviced.

When You Call for Technical Service

We will need to know the serial number of your Bair Hugger unit when you call us. The serial number label on the Model 500/OR unit is affixed to the galvanized pan on the underside of the unit.





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Introduction

Description of the Total Temperature Management* System

The Bair Hugger brand Total Temperature Management System consists of a Bair Hugger forced-air warming unit and Bair Hugger disposable components, including forced-air blankets and the 241* blood/fluid warming set. The system is intended for use in all clinical settings including the operating room. The warming unit draws ambient air through a filter and warms the air to the specified temperature. It then delivers the warmed air through a hose to the Bair Hugger blanket.

This manual describes how to service the Model 500/OR warming unit, and includes maintenance instructions and specifications. For information about using Bair Hugger blankets or the 241 blood/fluid warming set with Bair Hugger units, refer to the "Instructions for Use" included with each of these disposable components.

Indications for Use

The Bair Hugger brand Total Temperature Management System is intended to prevent and treat hypothermia and to provide warmth to cold or shivering patients. In addition, the system should be used whenever conditions exist that could cause patients to become cold.

Contraindications

Temperature

Do not apply heat to lower extremities during aortic cross-clamping. Thermal injury may occur if heat is applied to ischemic limbs.

200 Series Units

Do not use 200 Series warming units in operating rooms. Thermal injury and airborne contamination may result.

Warnings

Bair Hugger Therapy

Do not use Bair Hugger warming units with any forced-air blanket or cover other than Bair Hugger blankets. Thermal injury may result.

Do not use any fluid administration device other than the 241 fluid warming set with the Bair Hugger warming unit. Fluid temperature outside the indicated range may result.

Do not warm patients with the warming unit hose alone. Thermal injury may result. Always attach the hose to a Bair Hugger blanket before providing skin surface warming therapy.

Alarm

Do not continue therapy if the Over Heat Warning light illuminates and the audible alarm sounds. Thermal injury may result. Turn the warming unit off and contact qualified service personnel. If using 241 fluid warming, immediately stop fluid flow and discard the fluid warming set.

Purge Fluid Warming Set

Do not administer fluids if air is in the tubing. Introduction of air to the patient may result.

Precautions

Monitor Temperature

Monitor the patient's temperature at least every 10-20 minutes, and monitor patient vital signs regularly. Reduce air temperature or discontinue therapy when the therapeutic goal is reached or if vital sign instability occurs. Notify physician immediately of vital sign instability.

Pediatric Use

To prevent suffocation from misuse, do not leave children or infants unattended when administering Bair Hugger® therapy.

Sterility

Except for specific blanket models, Bair Hugger blankets are not sterile and all are intended for single patient use only. Placing a sheet between the Bair Hugger blanket and the patient does not prevent contamination of this product.

Patient Safety

Bair Hugger blankets meet the Consumer Product Safety Commission's flammable fabric regulation, 16 CFR 1610; however, follow standard safety protocols when using high intensity heat sources.

Visual Distortion

The blanket's clear plastic drape may cause visual distortion. Lift the plastic drape to view the patient's head clearly.

Read Instructions

See CONTRAINDICATIONS and WARNINGS before administering therapy. Read the Operator's Manual, blanket instructions, and fluid warming package instructions before use.

Important Information

Explosion Hazard

Do not use warming units in the presence of flammable anesthetics.

Electrical Shock Hazard

Do not disassemble the warming unit; refer to an authorized service technician. There are electrically live parts within the warming unit when it is connected to the power source, even when the switches are in the OFF or STANDBY position.

Electrical Interference

If radio frequency interference with monitoring equipment should occur, connect the warming unit to a different power source.

Read Before Servicing Equipment

The repair, calibration, and servicing of the warming unit requires the skill of a qualified medical equipment service technician who is familiar with good practice for medical device repair. If service is designated as not requiring manufacturer's attention, the technical information is provided in this service manual or will be provided, on request, by Arizant Healthcare Inc.

Refer to Service Manual

Perform all repairs and maintenance in accordance with the instructions in this service manual.

Safety Inspection

Perform a safety inspection after making repairs to the Bair Hugger warming unit and before returning the warming unit to service. A safety inspection should include a test of the operating temperatures (described in this service manual), the Over Heat alarm system, as well as a leakage current test.

Proper Use and Maintenance

Arizant Healthcare Inc. assumes no responsibility for the reliability, performance, or safety of the equipment if:

- Modifications or repairs are performed by non-authorized personnel.
- The equipment is used in a manner other than that described in the Operator's or Service Manuals.
- The equipment is installed in an environment that does not meet the relevant grounding requirements.

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Model 500/OR Warming Units

Cabinet Cleaning

Tools/Equipment

Soft cloth, *lightly* dampened with water and mild detergent

Method

1. Disconnect the warming unit from the power source.
2. Wipe the exterior of the warming unit clean.

CAUTION: *Do not use a dripping wet cloth when cleaning the warming unit. Moisture may seep into the electrical contacts and damage the components. Do not use alcohol or other solvents to clean the cabinet. Solvents may damage the labels and other plastic parts.*

Hose Replacement

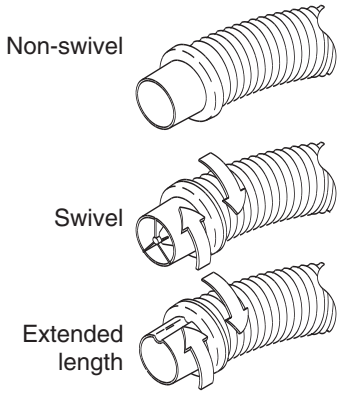
Method

1. Grasp the hose at the base and pull it free from the hose coupling flange.
2. Insert the new hose in the blower outlet flange.

   NOTE: *There are a number of variations of hoses (Figure 1) to provide for specific therapeutic needs. These various hose options are not interchangeable. If the hose were to be mated improperly, there would be an obvious fit problem. Do not force a hose into a fitting; use adapters or modify the hose ends. Use of a wrong hose could result in temperatures outside of the indicated range.*

3. Record the maintenance action taken and hours of operation (read from the hour meter) in the *Maintenance Log* (Appendix).

Figure 1. Hose Options



Power Fuse Replacement

The power fuses are located in the power entry module. ***NOTE:*** *A spare fuse is located in the fuse carrier* (see Figure 2).

Tools/Equipment

- Phillips-head screwdriver
- Small slotted screwdriver

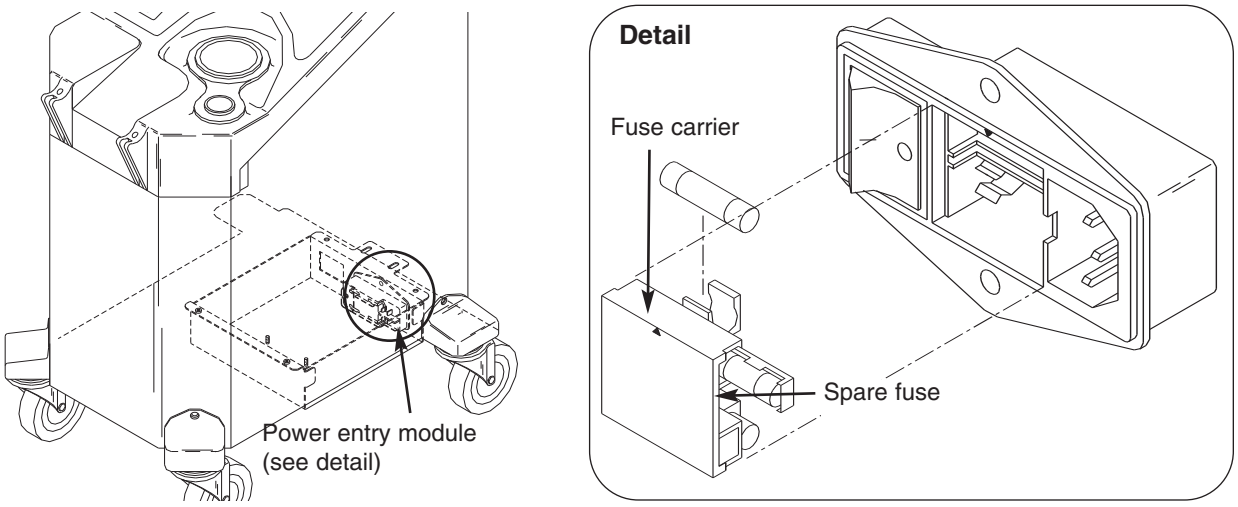
Method

1. Disconnect the warming unit from the power source.
2. Remove the 2 Phillips-head screws that secure the cord retainer. Remove the power cord.
3. Locate the fuse carrier in the center of the power entry module (see Figure 2).
4. Use the small screwdriver to remove the fuse carrier from the power entry module.
5. Remove the blown fuse(s) from the fuse carrier.
6. Place the new fuse(s) (as marked) into the fuse carrier.

CAUTION: *Replace only with the fuse capacity and type that is indicated on the adjacent label.*

7. Replace the fuse carrier into the power entry module.
8. Reattach the power cord.
9. Replace the 2 Phillips-head screws to reattach the cord retainer.
10. Reconnect the warming unit to the power source.
11. Record the maintenance action taken and the hours of operation (read from the hour meter) in the *Maintenance Log* (Appendix).

Figure 2. Location of Power Fuse



Control Board Fuse Replacement

The 200mA (100mA for 220-240V units) control board fuse is located on the control board. (See Figure 3.) If the 500mA fuse requires replacement, please call Technical Service.

The internal fuse on the Model 500/OR is for control board functions only. The power fuses are located in the power entry module. Instructions for power fuse replacement can be found in the *Power Fuse Replacement* section.

Tools/Equipment

Phillips-head screwdriver

Method

1. Disconnect the warming unit from the power source.
2. Remove the 8 Phillips-head screws around the top cover.
3. A cable is attached to the underside of the cover (see Figure 3). Carefully lift the cover straight up about 3 inches (7.6 cm).
4. Tilt the cover to access the mounted cable that attaches to the cover's display board. Note the direction in which the cable connector is mounted and detach it from the display board.
5. The control board fuse is near the main transformer (see Figure 3).

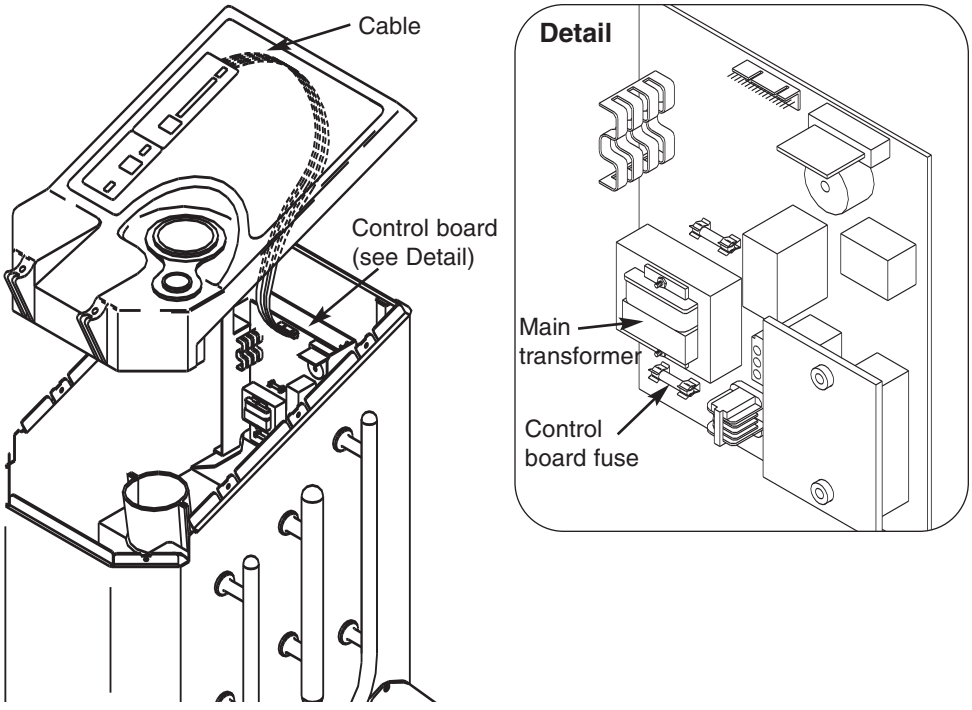


Figure 3. Location of Control Board Fuse

6. Remove the fuse and replace with a new one.

CAUTION: *Replace only with the fuse capacity and type that is indicated on the adjacent label.*

7. Reconnect the cable to the display board (ensure that the mounting direction is correct).
8. Place the top cover back into position.
9. Replace the 8 Phillips-head screws around the cover.
10. Reconnect the warming unit to the power source.
11. Record the maintenance action taken and the hours of operation (read from the hour meter) in the *Maintenance Log* (Appendix).

Air Filter Replacement

The air filter is mounted inside the rear access panel.

Tools/Equipment

Phillips-head screwdriver

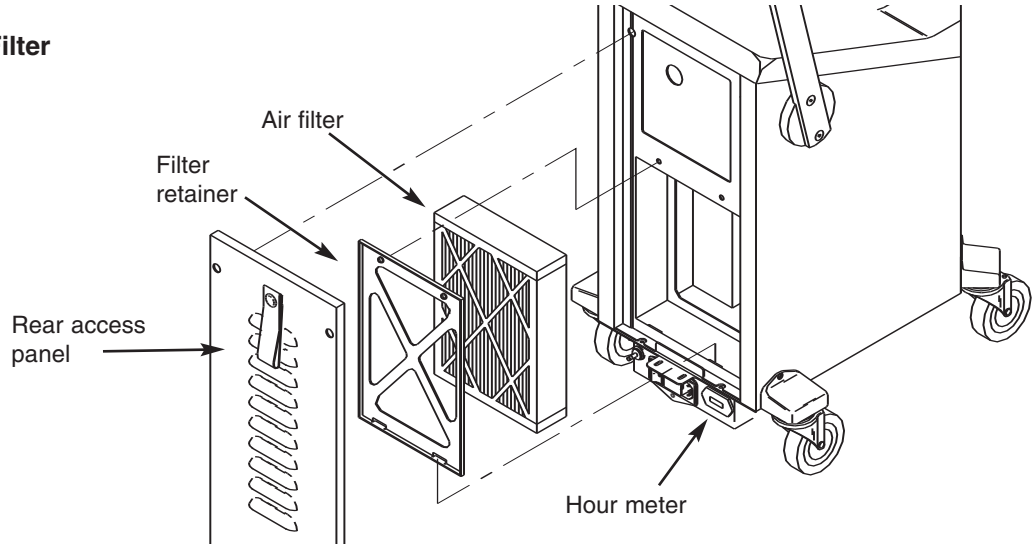
Service Frequency

6-month intervals, or 500 hours of use

Method

1. Disconnect the warming unit from the power source.
2. Loosen the 2 Phillips-head 1/4-turn screws on the rear access panel. Tilt the panel out and remove it.
3. Loosen the 2 Phillips-head 1/4-turn screws on the filter retainer, remove the retainer, and pull out the filter.
4. Record the hour meter reading and date on the new air filter label.
5. Place the new filter into the filter box, as shown below ("cross-bars" on the filter face OUT).
6. Replace the filter retainer.
7. Tighten the 2 Phillips-head 1/4-turn screws on the filter retainer.
8. Replace the rear access panel.
9. Tighten the 2 Phillips-head 1/4-turn screws on the rear access panel.
10. Reconnect the warming unit to the power source.
11. Read the hour meter, located on the lower right-hand corner in the back of the warming unit (see Figure 4). Record the hours and maintenance action taken in the *Maintenance Log* (Appendix).

Figure 4.
Location of Air Filter



Over Heat Alarm Testing

WARNING: *Perform all testing and adjustments of warming unit temperature with a calibrated Model 221 Temperature Test Kit or a Model 22110 Temperature Test Unit. Arizant Healthcare Inc. assumes no responsibility for the reliability, safety, or performance of the Bair Hugger system if warming unit temperature testing or adjustments are made in any other manner than that described here. Improper measurement or adjustment of the warming unit's over heat alarm setting could result in patient exposure to temperatures outside of the indicated range, and may lead to patient injury.*

NOTE: *The Model 221 Temperature Test Kit and the Model 22110 Temperature Test Unit are designed to simulate the operating characteristics of Bair Hugger blankets when used with Bair Hugger warming units; use of the temperature test device with any other warming system may result in imprecise readings.*

If using the Model 221 test kit, temperature readings are taken from the test kit itself. If using the Model 22110 test unit, temperature readings are taken from a calibrated temperature meter.

Service Frequency

6-month intervals, or 500 hours of use

Tools/Equipment

- Model 221 Temperature Test Kit or Model 22110 Temperature Test Unit
- Phillips-head screwdriver
- Short jumper wire with alligator clips

If using the Model 22110 Temperature Test Unit:

- Use a calibrated temperature meter that can accept a male subminiature connector and read a K style thermocouple (e.g., a Fluke Model 52 K/J Thermometer).
- If the connector does not fit your meter, you can remove the provided connector and attach a connector that fits your meter.

Method

1. Disconnect the warming unit from the power supply.
2. Loosen the 2 Phillips-head screws on the rear access panel. Lift the access panel to remove it.

3. Two (2) test point leads (TP3 & TP4) protrude in the exposed area of the board (see Figure 5). Place a jumper wire between the test points.

4. Insert the open hose end from the warming unit in the port on the temperature test device (see Figure 6).

   NOTE: *Do not block the rear air vents on the test device.*

Figure 5. Location of TP3 and TP4

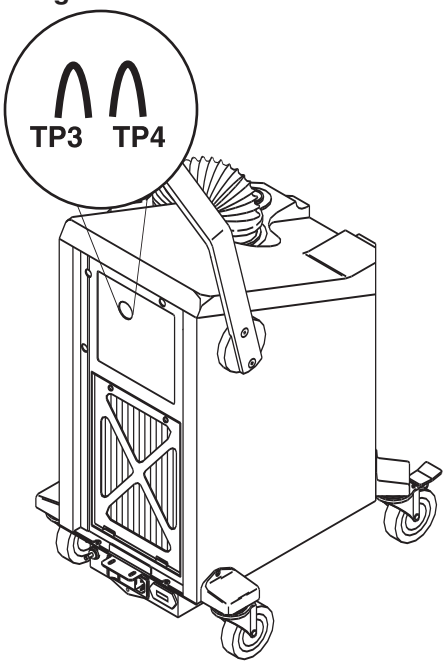
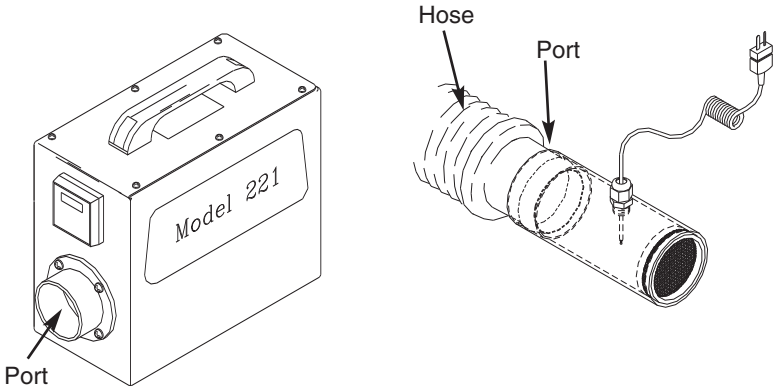


Figure 6. Model 221 Temperature Test Kit and Model 22110 Temperature Test Unit



5. Connect the warming unit to the power source and turn the warming unit power ON.

   NOTE: *The temperature setting will not affect the over heat test because the control circuit has been bypassed by the jumper wire.*

6. When the over heat alarm activates both visually and audibly, note the maximum temperature achieved. Let the alarm operate for at least 1 minute or until the temperature read-out is approximately 38°C (100°F), then, turn the warming unit OFF and then ON; the alarm should also turn off. The alarm and manual reset constitutes one cycle.

   NOTE: *If the alarm does not reset, allow the unit to alarm for 1 minute before turning the warming unit OFF, then ON again.*

7. Allow the warming unit to cycle 2 times more, after the first satisfactory reading. When the alarm activates, note the alarm temperature read-out. See Table 1 for specified limits.

   NOTE: *The first over heat cycle temperature may be slightly higher when started from a cold start.*

8. If the results of the test **did not** meet specified limits, adjust the over heat thermostat. See the *Over Heat Alarm Thermostat Adjustment* section.
9. If the results of the test **did** meet specified limits, turn the warming unit power OFF and disconnect the warming unit from the power source.
10. Remove the hose end from the port on the temperature test device.
11. Remove the jumper wire and reinstall the rear access panel.
12. Record the maintenance action taken and hours of operation (read from the hour meter) in the *Maintenance Log* (Appendix).

Table 1. Over Heat Specification

Model 500 Series High Temperature Thermostat The thermostat interrupts power to the heater and activates the alarm at a preset high temperature of 53° ± 3°C (127.4° ± 5.4°F) or less at the end of the hose, as determined by the Model 221 Temperature Test Kit and the Model 22110 Temperature Test Unit.

Over Heat Alarm Thermostat Adjustment

WARNING: *Improper adjustment of the warming unit's over heat alarm setpoint could result in patient exposure to temperatures outside the indicated range, and may lead to patient injury.*

- *Closely follow instructions for thermostat adjustment.*

- *Dangerous voltages are present at the terminals of the thermostat.*
- *Always use a Model 221 Temperature Test Kit or a Model 22110 Temperature Test Unit to verify output temperatures.*
- *Recalibrate the temperature test kit at least once a year. The Model 22110 Temperature Test Unit does not need to be calibrated. The meter it is connected to must be calibrated. Follow the calibration instructions in the meter service manual or follow standard facility calibration schedules.*
- *When in doubt, contact Technical Service for assistance in temperature adjustment.*

Tools/Equipment

- Model 221 Temperature Test Kit or Model 22110 Temperature Test Unit
- Small slotted screwdriver
- Phillips-head screwdriver
- Short jumper wire with alligator clips

If using a Model 22110 Temperature Test Unit:

- Use a calibrated temperature meter that can accept a male subminiature connector and read a K style thermocouple (e.g., a Fluke Model 52 K/J Thermometer).
- If the connector does not fit your meter, you can remove the provided connector and attach a connector that fits your meter.

Method

1. Disconnect the warming unit from the power source.
2. Loosen the 2 Phillips-head 1/4-turn screws on the rear access panel. Lift the access panel to remove it.
3. Two (2) test point leads (TP3 & TP4) protrude in the exposed area of the board (see Figure 5); place a jumper wire between the test points.
4. Insert the open hose end from the warming unit in the port on the temperature test device.

   NOTE: *Do not block the rear air vents on the test device.*

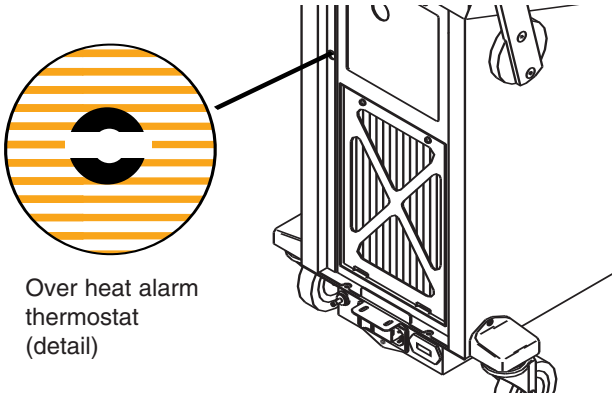
5. Reconnect the warming unit to the power source. Turn the power ON.

   NOTE: *The temperature setting will not affect the over heat test because the control circuit has been bypassed by the jumper wire.*

6. Locate the over heat adjustment thermostat (see Figure 7).

   NOTE: *Adjustment of the over heat alarm thermostat is most easily done while the temperature read-out is climbing.*

Figure 7. Location of Over Heat Alarm Thermostat



7. Use a small slotted screwdriver to adjust the thermostat.
   - If the tested alarm temperature was **below** the specified limits, turn the screwdriver CLOCKWISE to increase the alarm temperature.
   - If the tested alarm temperature was **above** specified limits, turn the screwdriver COUNTERCLOCKWISE to lower the alarm temperature.
8. Fine-tune the adjustment until the warming unit alarms at the specified temperature.
9. When the over heat alarm activates both visually and audibly, note the maximum temperature achieved. Let the alarm operate for at least 1 minute, or until the temperature read-out is approximately 38°C (100°F), then, turn the warming unit OFF and then ON; the alarm should also turn off. The alarm and manual reset constitutes one cycle.
10. Retest the alarm temperature to verify correct adjustment at least 2 times. Allow the warming unit to cycle before each test.
11. When the warming unit alarm setting is within the specified limit, turn the warming unit OFF, and disconnect it from the power source.
12. Remove the hose end from the port on the temperature test device.
13. Remove the jumper from between the test points, and close the rear access panel. Resecure the screws.
14. Record the maintenance action taken and the hours of operation (read from the hour meter) in the *Maintenance Log* (Appendix).

Normal Operating Temperature Testing

WARNING: *Perform all testing and adjustments of warming unit temperature with a calibrated Model 221 Temperature Test Kit or a Model 22110 Temperature Test Unit. Arizant Healthcare Inc. assumes no responsibility for the reliability, safety, or performance of the Bair Hugger system if warming unit temperature testing or adjustments are made in any other manner than that described here. Improper measurement or adjustment of the warming unit's normal operating temperature could result in patient exposure to temperatures outside of the indicated range, and may lead to patient injury.*

NOTE: *The Model 221 Temperature Test Kit and the Model 22110 Temperature Test Unit are designed to simulate the operating characteristics of Bair Hugger blankets when used with Bair Hugger warming units; use of the temperature test device with any other warming system may result in imprecise readings.*

Service Frequency

6-month intervals, or 500 hours of use

Tools/Equipment

Model 221 Temperature Test Kit or the Model 22110 Temperature Test Unit

Method

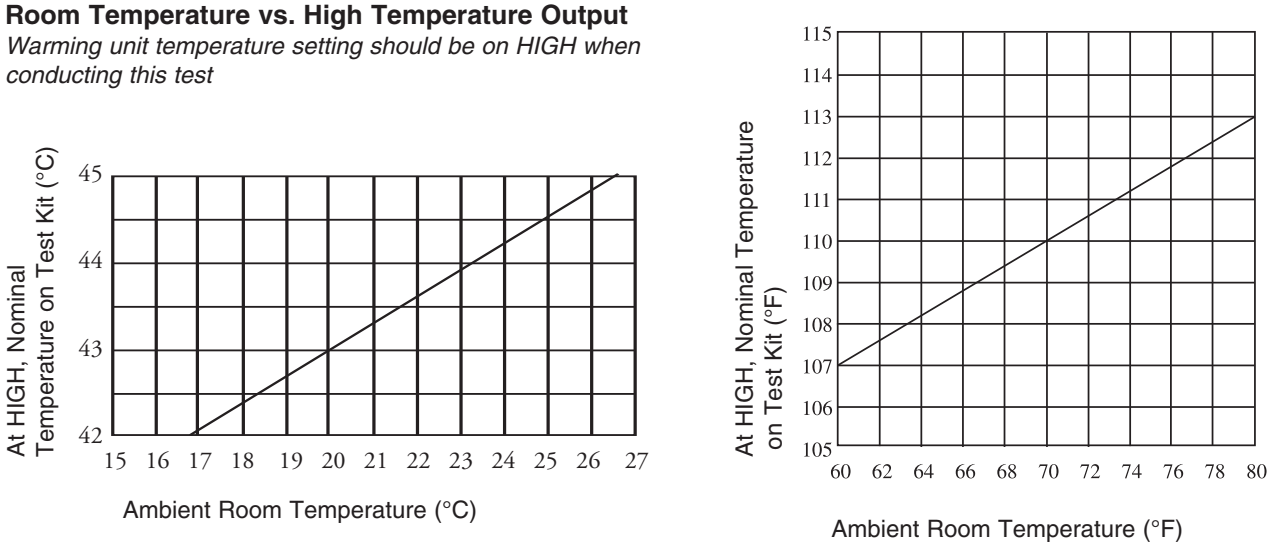
1. Insert the open hose end from the warming unit in the port on the temperature test device (see Figure 6).

   NOTE: *Do not block the rear air vents on the test device.*

2. Turn the warming unit power ON and select the HIGH temperature setting. Always begin testing at the HIGH setting.
3. Note the ambient room temperature.

4. After approximately 5 minutes of operation, note the temperature read-out. Use Figure 8 to correlate ambient temperature to the warming unit's operating temperature.

Figure 8.
Room Temperature vs. High Temperature Output
Warming unit temperature setting should be on HIGH when conducting this test



5. After correcting for ambient temperature, the tested normal operating temperature should meet the limits specified in Table 2.
6. If the HIGH temperature setting **is not** within specified limits, adjust the normal operating temperature. See the *Normal Operating Temperature Adjustment* section.
7. If the HIGH temperature setting **is** within specified limits, verify the MED, and then LOW settings against specified limits (allow the warming unit to operate at each temperature setting for about 3 to 5 minutes before the test).
8. Turn the warming unit OFF. Remove the hose end from the port on the temperature test device.
9. Record the maintenance action taken and the hours of operation (read from the hour meter) in the *Maintenance Log* (Appendix).

Table 2. Model 500 Series Operating Temperatures
(Operating temperature = Average temperature at the end of the hose.)

HIGH:	43° ± 3°C (109.4° ± 5.4°F)
MED:	38° ± 3°C (100.4° ± 5.4°F)
LOW:	32° ± 3°C (89.6° ± 5.4°F)

Note: Air temperature reaching the patient is approximately 2°C lower than the listed temperatures.

Normal Operating Temperature Adjustment

WARNING: *Improper adjustment of the warming unit's normal operating temperature could result in patient exposure to temperatures outside of the indicated range, and may lead to patient injury.*

- *Closely follow instructions for temperature adjustment.*
- *Always use a Model 221 Temperature Test Kit or a Model 22110 Temperature Test Unit to verify output temperatures.*
- *Always make adjustments relative to the HIGH temperature setting on the warming unit. When the HIGH setting is accurately adjusted, the MED and LOW settings should also be within specified limits. If the HIGH range is properly set, and MED and/or LOW do not meet specifications, call Arizant Healthcare* Technical Service.*
- *Recalibrate the temperature test kit at least once a year. The Model 22110 Temperature Test Unit does not need to be calibrated. The meter it is connected to must be calibrated. Follow the calibration instructions in the meter service manual or follow standard facility calibration schedules.*
- *When in doubt, contact Arizant Healthcare Technical Service for assistance in temperature adjustment.*

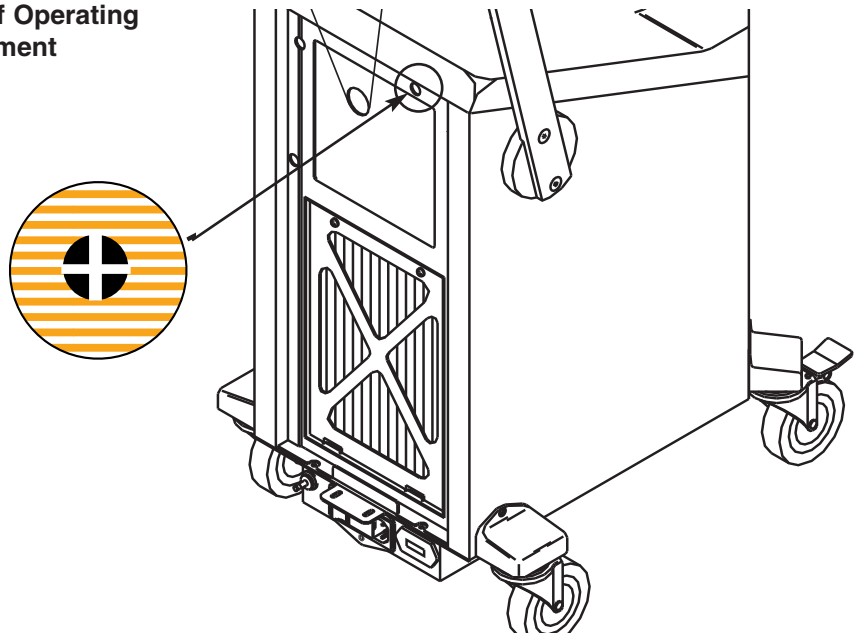
Tools/Equipment

- Model 221 Temperature Test Kit or Model 22110 Temperature Test Unit
- Small slotted screwdriver
- Phillips-head screwdriver

Method

The operating temperature adjustment potentiometer may be accessed through an opening in the upper right corner of the rear access panel (see Figure 9).

Figure 9. Location of Operating Temperature Adjustment Potentiometer



Normal Operating Temperature Adjustment

1. Insert the open hose end from the warming unit in the port on the temperature test device.

   NOTE: *Do not block the rear air vents on the test device.*

2. Loosen the 2 Phillips-head 1/4-turn screws on the rear access panel. Lift the panel and remove it.
3. Turn the warming unit power ON, and allow it to operate at HIGH for about 3 to 5 minutes before adjusting the potentiometer.
4. Insert a slotted screwdriver in the slot on top of the potentiometer.
   - If the tested operating temperature was **below** specified limits, turn the screwdriver CLOCKWISE to increase the operating temperature.
   - If the tested operating temperature was **above** specified limits, turn the screwdriver COUNTERCLOCKWISE to lower the operating temperature.
5. Adjust the potentiometer until the temperature read-out meets the limits specified in Table 2 for the HIGH temperature setting (correlated to ambient temperature as in Figure 8).
6. Verify that the MED, and then LOW temperature settings are also within specified limits. If the HIGH range is properly set, and MED and/or LOW do not meet specs, call Arizant Healthcare Technical Service.
7. Turn the warming unit power OFF, and remove the hose from the port on the temperature test device.
8. Replace the rear access panel and resecure the 2 Phillips-head 1/4-turn screws.
9. Record the maintenance action taken and hours of operation (read from the hour meter) in the *Maintenance Log* (Appendix).

Specifications

Physical Characteristics

Dimensions 24 in. high x 16 in. deep x 14 in. wide (61 cm high x 41 cm deep x 36 cm wide)

Weight 43 lb (19.5 kg)

Safety System

Thermostat

Bulb and capillary type

Over Heat Warning

If the temperature gets too high, the Over Heat warning light on the front panel will illuminate and the alarm will sound. The heat will shut off and the blower will continue to run.

High Temperature Thermostat

The thermostat interrupts power to the heater and activates the alarm at a preset high temperature of 53° ± 3°C, 127.4° ± 5.4°F, or less, at the end of the hose, as determined by the Model 221 Temperature Test Kit or the Model 22110 Temperature Test Unit.

Temperature Characteristics

Air temperatures reaching the patient are approximately 2°C lower than the listed temperatures.

Operating Temperatures

Average temperature at the end of the hose, assuming the back pressure of a Bair Hugger blanket, or a Model 221 Temperature Test Kit or the Model 22110 Temperature Test Unit.

HIGH:	43° ± 3°C	109.4° ± 5.4°F
MED:	38° ± 3°C	100.4° ± 5.4°F
LOW:	32° ± 3°C	89.6° ± 5.4°F

Electrical Characteristics

Leakage Current

Meets hospital and regulatory standards for leakage current.

Motor

Fractional horsepower, single phase

Heater

An electric heating element

Fuses

500/OR:	10A, 200mA and 500mA
505(Japan):	10A, 200mA and 500mA

Device Ratings

110-120VAC, 60Hz, 9.5 Amperes
220-240VAC, 50Hz, 4.5 Amperes
100VAC, 50/60Hz, 9.5 Amperes

Key to Figure 10

1	Bulb Type Thermostat
2	Hour Meter
3	Control Board
4	Thermocouple
5	Cabinet
6	Cover
7	Base Plate
8	Filter, 0.2 Micron
9	Caster(4)
11	Motor and Blower Housing
12	Motor Mounting Bracket
13	Heater
15	Bracket, Hose Hanger
16	Handle
17	Front Panel Label
19	Control Board Fuse 200mA
21	Motor Capacitor
22	Filter Housing
23	Display Board
24	Rear Access Panel
25	Power Entry Module
26	Power Fuses (2)
27	Filter Bracket

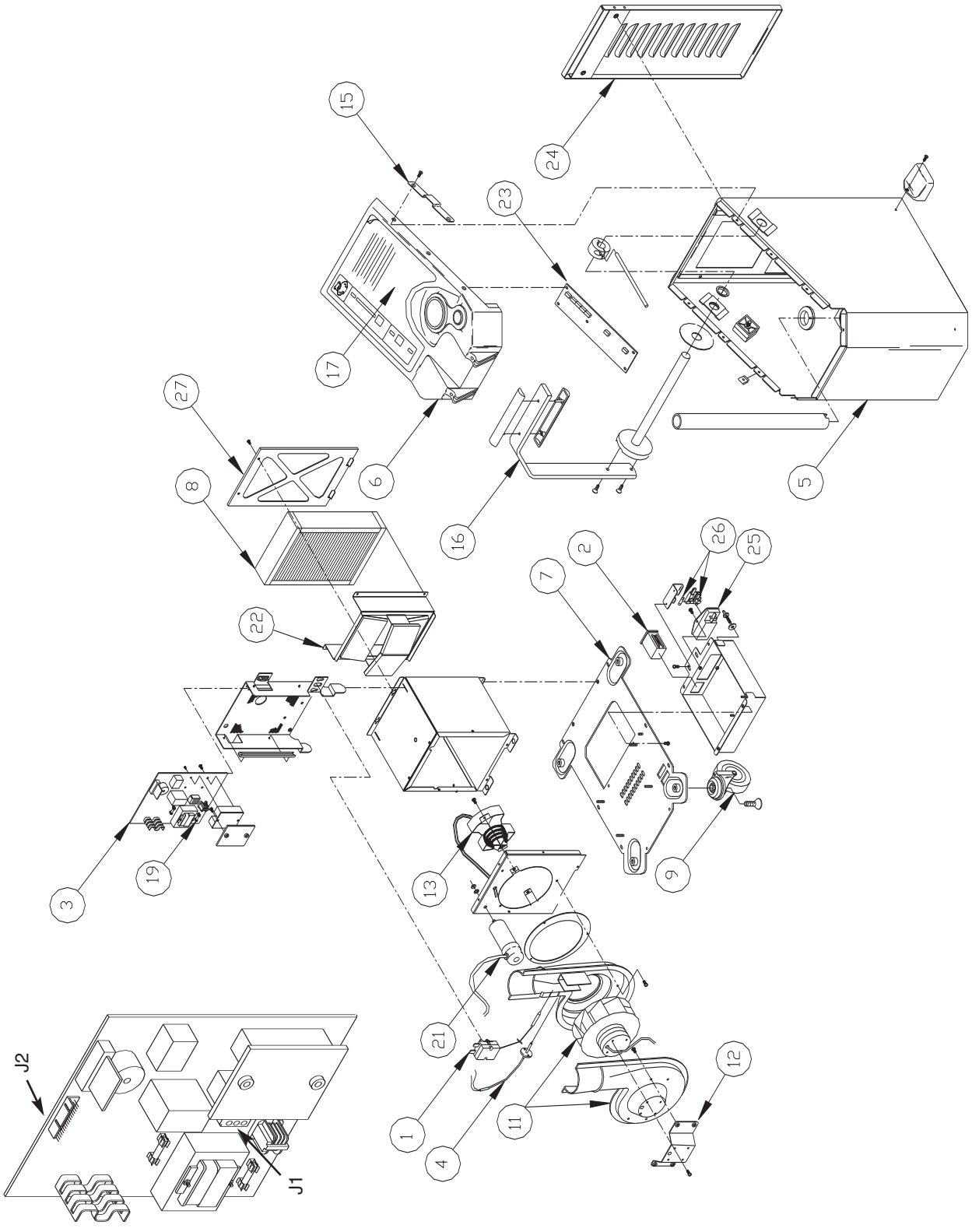


Figure 10. Exploded Drawing

Returning Units for Service

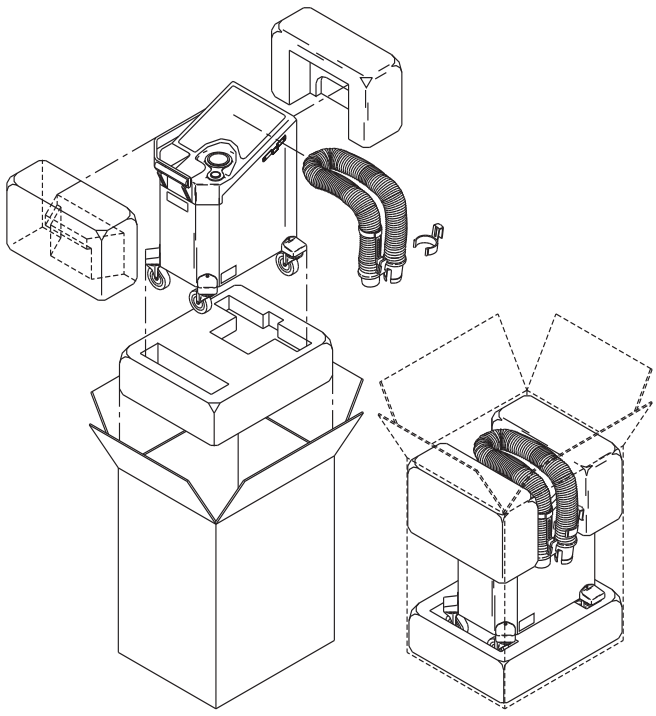
Tools/Equipment

- Arizant Healthcare service carton
- Tape dispenser
- Shipping label

Method

1. Call Technical Support (see inside front cover for phone number) to get a Return Authorization (RA) number and a service carton.
2. Open the carton and remove the 2 small foam pads. Leave the large foam pad in place in the bottom of the carton.
3. Make sure the wheels on the warming unit are turned toward the inside, and carefully lower the unit into the carton.
4. Insert the two small foam pads (see Figure 11).
5. Drape the hose over the unit as shown in the figure.
6. Seal the carton with tape.
7. Apply the shipping label addressed to Arizant Healthcare Inc.
8. Using a marking pen, write your RA number (from Technical Support) on the outside of the carton.

Figure 11. Service Carton



Call Technical Support for Replacement Parts

Problem	Possible Cause	Remedy; Service Procedure
The warming unit does not turn on.	The power isolation switch is OFF. The isolation switch positions are marked O (OFF) and I (ON). Be sure the switch is in the I (ON) position.	Turn on the power isolation switch, if so equipped.
	Damaged or unplugged power cord.	Replace the cord or plug in the warming unit.
	Blown power fuses.	Replace the blown fuses. See *Power Fuse Replacement* procedure.
	Poor or loose wire connections.	Check the connectors at the power entry module (if so equipped).
		Ensure that connector J1 is firmly seated (see Figure 10).
	No power to outlet.	Check power at the outlet.
	Loose cord at power entry cord.	Firmly seat the power module.
The warming unit circulates air but it does not heat.	Poor connections of the thermocouple (J2) on the control board. (See Figure 10.)	Reattach any loose thermocouple leads connections.
The warming unit heats at some temperature settings but not on others. Example: the warming unit works on LOW setting, but not on HIGH setting.	Loose connection at J2. (See Figure 10.)	Reattach loose connections.
	Warming unit has been in an over heat condition and temperature has decreased.	Turn the warming unit OFF and then back ON.
	Loose wire connections at the desired heat setting.	Reattach any loose connections.
Warming unit alarms upon startup.	Open thermostat.	Call Technical Service.
	Poor wire connections at thermostat.	Reattach any loose connections to thermostat. (See Figure 10).
Warming unit alarms at too low or too high a temperature.	Over heat thermostat not in calibration.	See *Over Heat Alarm Thermostat Adjustment* procedure.

Maintenance Log		
Date	Maintenance Action Performed	Hour Meter

Maintenance Log		
Date	Maintenance Action Performed	Hour Meter

Maintenance Log		
Date	Maintenance Action Performed	Hour Meter

Symbol Definitions

ON/STANDBY

ON (used on Isolation Switch)

OFF (used on Isolation Switch)

ON/OFF Push Button Switch

Temperature Control

Equipotentiality plug (Ground)

Fuse

Warning; Caution; or Attention: See accompanying documents

Non Explosion-Proof

Dangerous Voltage

Type BF Equipment (Patient applied)

Voltage, Alternating Current (AC)

Arizant
Healthcare
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10393 West 70th Street, Eden Prairie, MN 55344 USA
TEL 800-733-7775 • 952-947-1200 • FAX 800-775-0002 • 952-947-1400
www.bairhugger.com

Authorized Representative in the European Community (as defined in Article 14 of the Medical Device Directive: 93/42/EEC):
Actamed Limited, Calder Island Way, Wakefield WF2 7AW,
United Kingdom • TEL (44) 1924 200550 • FAX (44) 1924 200518

Bair Hugger temperature management products may be covered by one or more of the following patents: US 6,355,915; 6,309,409; 6,309,408; 6,290,716; 6,287,327; 6,254,337; 6,241,755; 6,228,107; 6,210,428; 6,203,567; 6,176,870; 6,168,612; 6,146,412; 6,129,936; 6,126,681; 6,126,393; 6,036,722; 5,997,572; 5,968;084; 5,964,792; 5,928,274; 5,824,025; 5,800,489; 5,773,275; 5,733,318; 5,697,963; 5,674,269; 5,658,325; 5,620,482; 5,545,194; 5,405,371; 5,350,417; 5,336,250; 5,324,320; 5,300,102; 5,300,101; 5,184,612; 5,044,364; 4,572,188. Japan 2,561,326. Canada 1,325,484. EPO 0,311,366. Australia 756,900. Other patents pending.

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201020A 04/04